FIG. 1

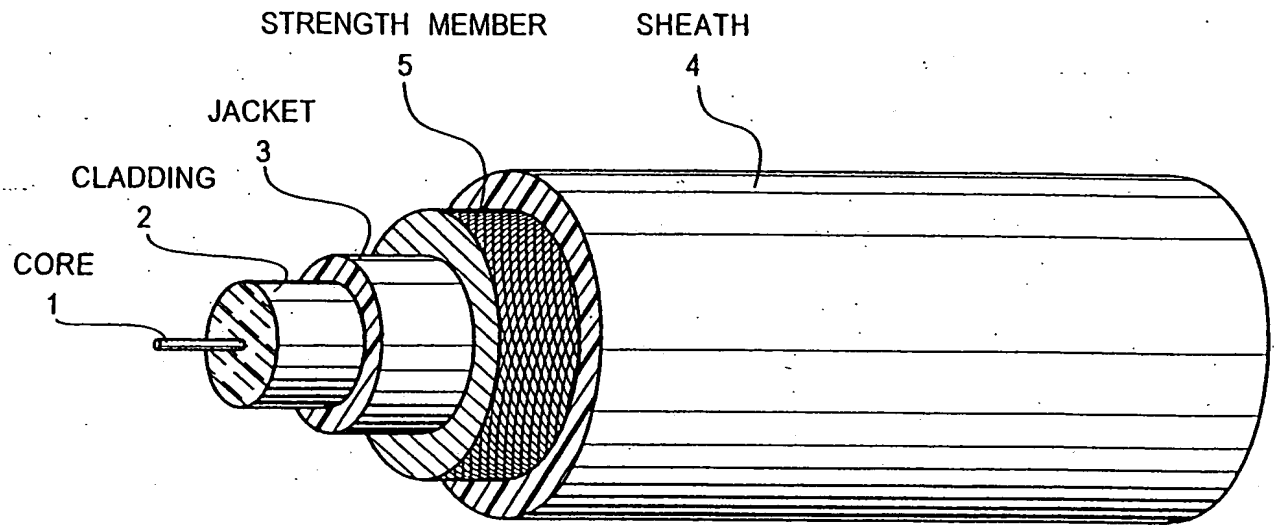
STRENGTH MEMBER
5
SHEATH
4
JACKET
3
CLADDING
2
CORE
1

FIG. 2

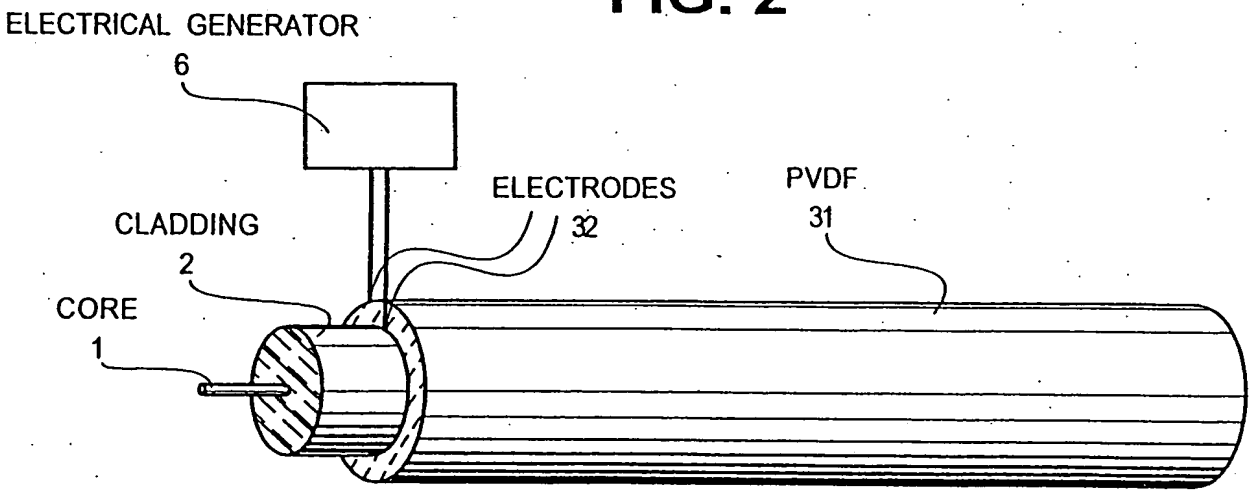
ELECTRICAL GENERATOR
6
ELECTRODES
32
PVDF
31
CLADDING
2
CORE
1

FIG. 3

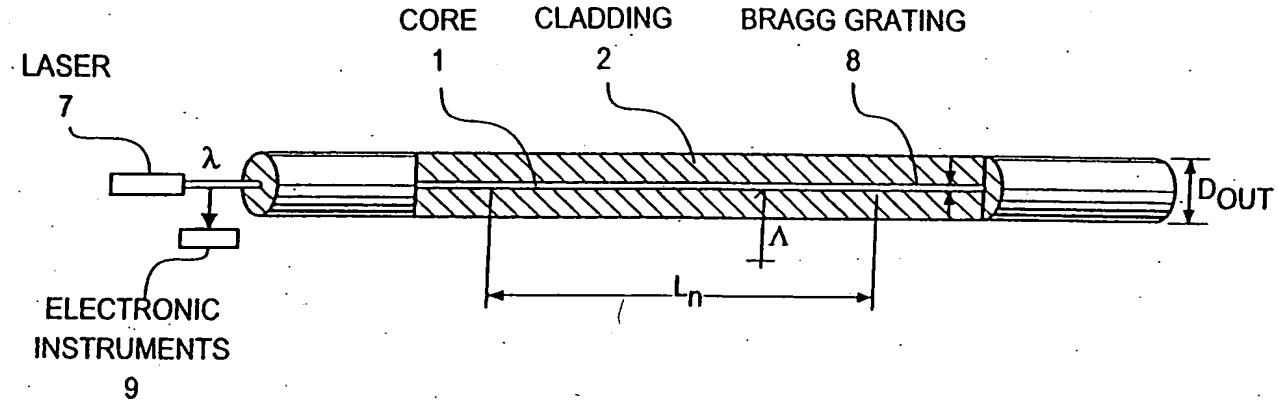
CORE
1
CLADDING
2
BRAGG GRATING
8
LASER
7
λ
D_{OUT}
Λ
L_n
ELECTRONIC
INSTRUMENTS
9

FIG. 4

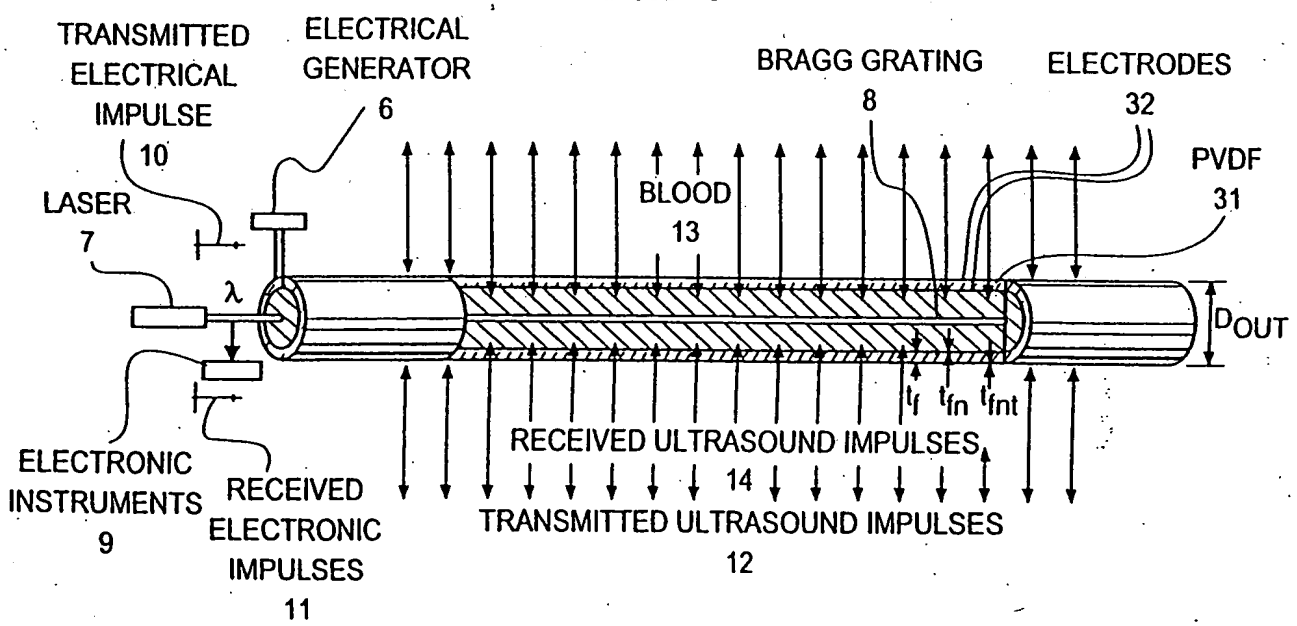
TRANSMITTED
ELECTRICAL
IMPULSE
10
ELECTRICAL
GENERATOR
6
BRAGG GRATING
8
ELECTRODES
32
PVDF
31
BLOOD
13
LASER
7
λ
D_{OUT}
t_f t_{fn} t_{fnt}
ELECTRONIC
INSTRUMENTS
9
RECEIVED
ELECTRONIC
IMPULSES
11
RECEIVED ULTRASOUND IMPULSES
14
TRANSMITTED ULTRASOUND IMPULSES
12

FIG. 5

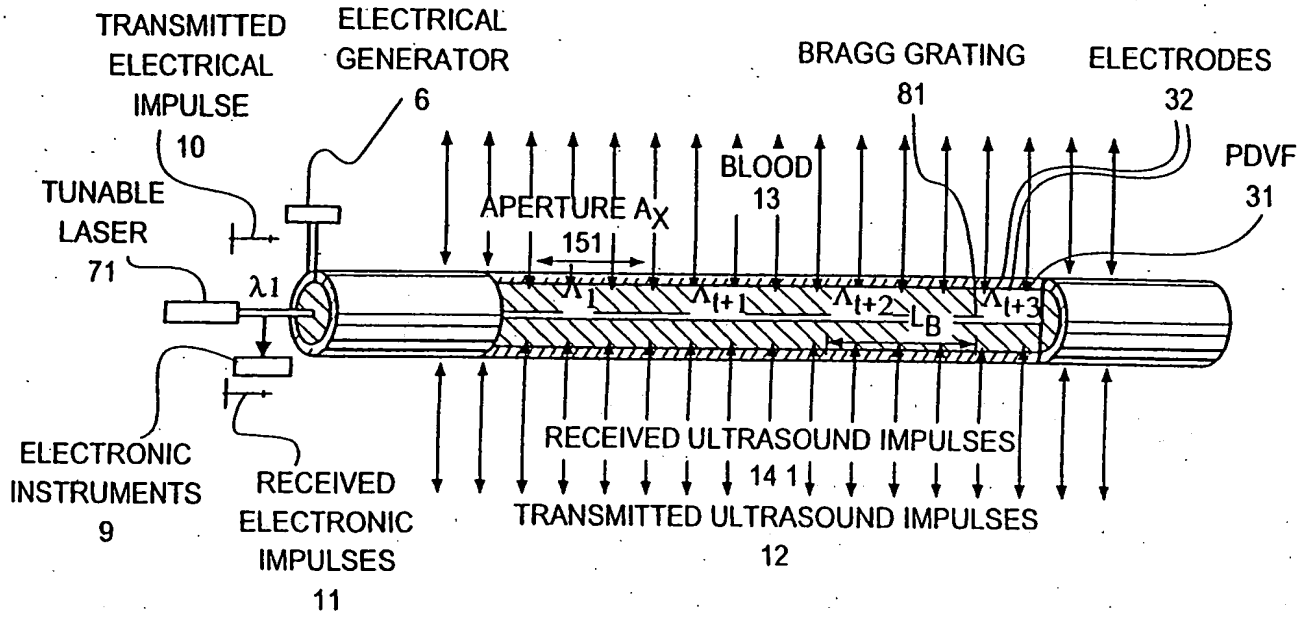
TRANSMITTED ELECTRICAL IMPULSE 10
ELECTRICAL GENERATOR 6
BRAGG GRATING 81
ELECTRODES 32
PDVF 31
TUNABLE LASER 71
λ1
APERTURE Ax
151
BLOOD 13
λ1
λt+1
λt+2
λt+3
LB
ELECTRONIC INSTRUMENTS 9
RECEIVED ELECTRONIC IMPULSES 11
RECEIVED ULTRASOUND IMPULSES 14 1
TRANSMITTED ULTRASOUND IMPULSES 12

FIG. 6

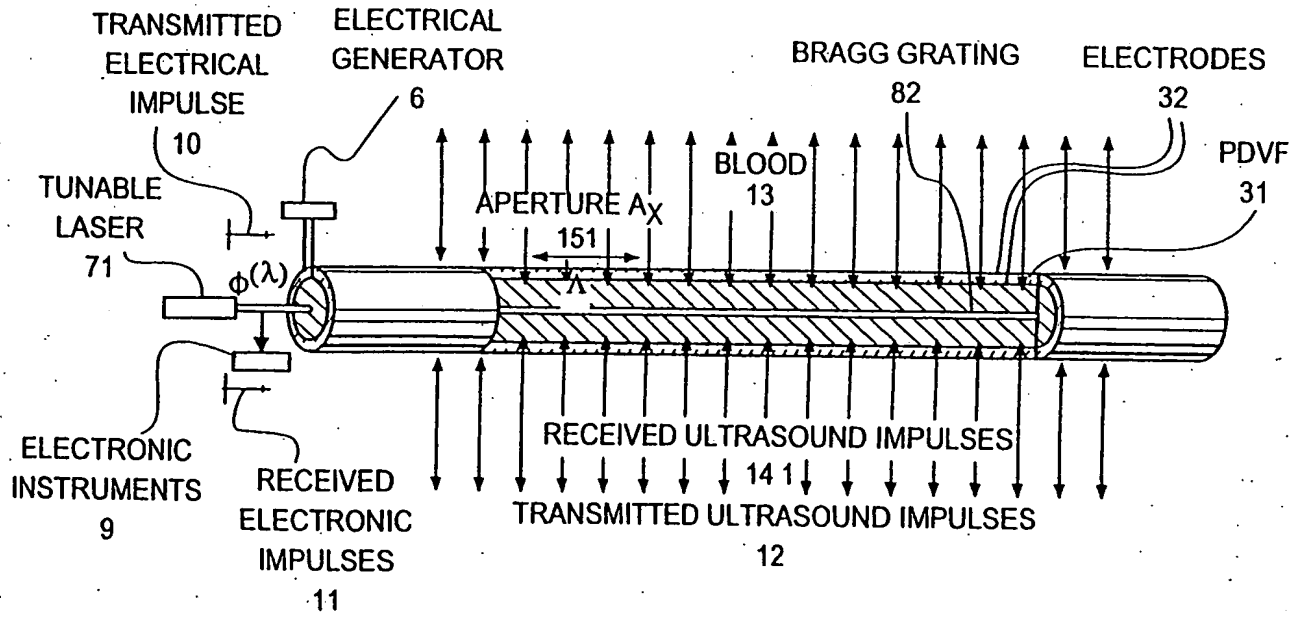
TRANSMITTED ELECTRICAL IMPULSE 10
ELECTRICAL GENERATOR 6
BRAGG GRATING 82
ELECTRODES 32
PDVF 31
TUNABLE LASER 71
φ(λ)
APERTURE Ax
151
BLOOD 13
λ
ELECTRONIC INSTRUMENTS 9
RECEIVED ELECTRONIC IMPULSES 11
RECEIVED ULTRASOUND IMPULSES 14 1
TRANSMITTED ULTRASOUND IMPULSES 12

FIG. 7

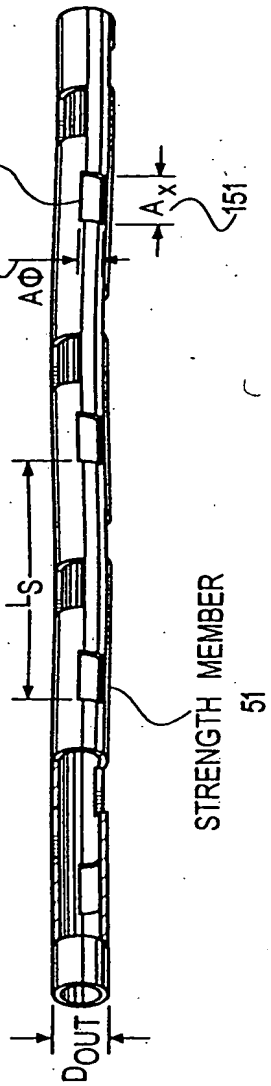
15
152
AΦ
Ax
151
Ls
STRENGTH MEMBER
51
DOUT

FIG. 8

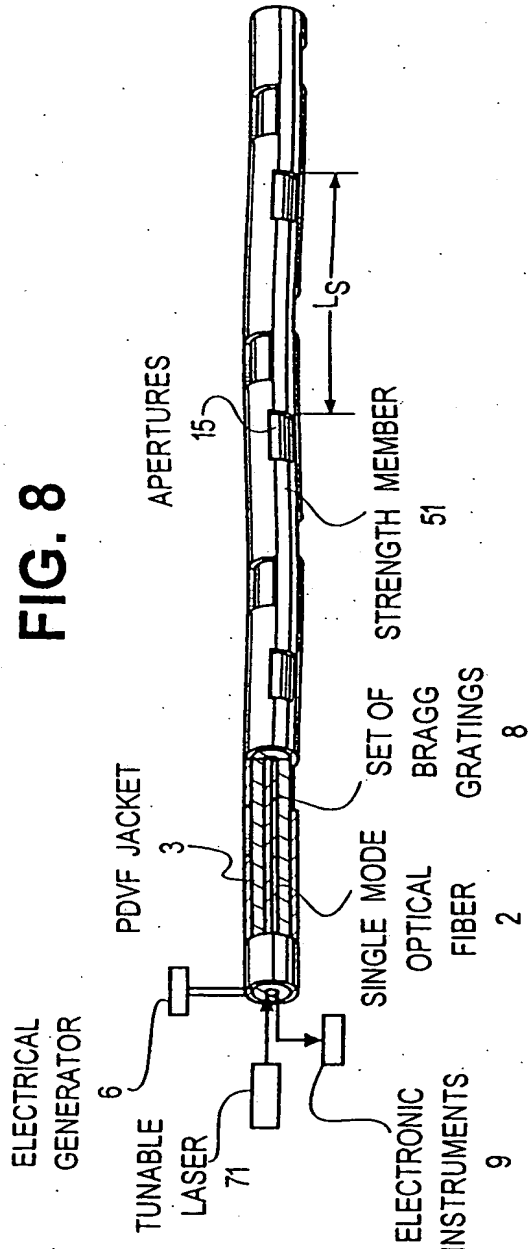
APERTURES
15
Ls
STRENGTH MEMBER
51
PDVF JACKET
3
SET OF
BRAGG
GRATINGS
8
SINGLE MODE
OPTICAL
FIBER
2
ELECTRICAL
GENERATOR
6
TUNABLE
LASER
71
ELECTRONIC
INSTRUMENTS
9

FIG. 9

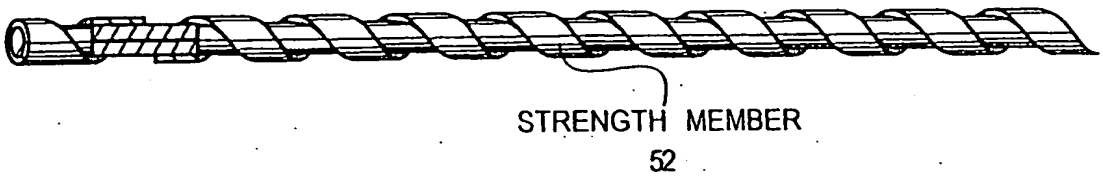

FIG. 10

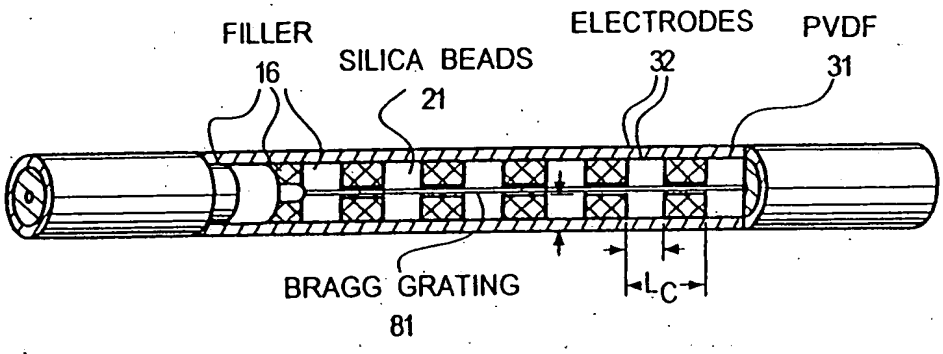

FIG. 11

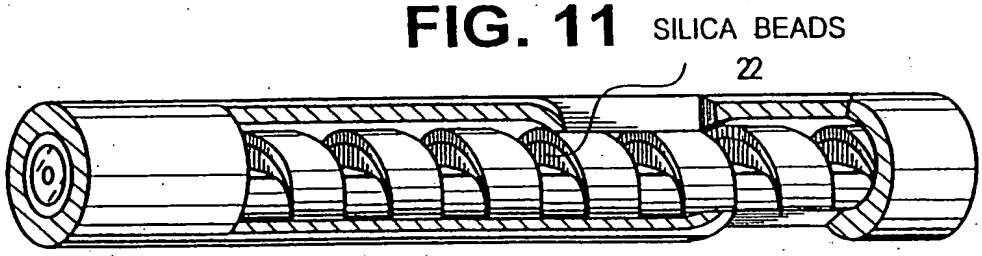

FIG. 12

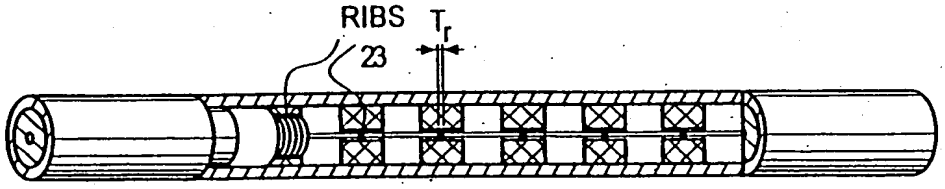
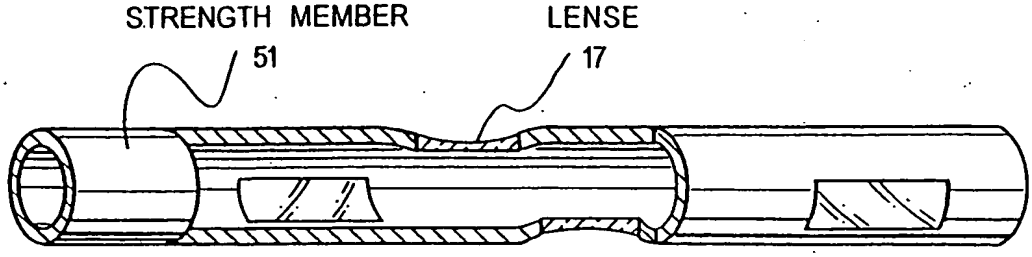
FIG. 13